Application No. 10/733,383   Docket No.: 0465-1115P
Reply to Office Action of October 28, 2008   Page 2

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) An apparatus for ~~automatically switching an audio mode in a~~ digital TV~~displaying audio~~, the apparatus comprising:

a preprocessing part configured to collect sample audio data, to extract features from the collected sample audio data and to classify the extracted features according to preset audio kinds by using a learning model; and

an audio mode determining part configured to determine an audio kind of a listening audio by pattern-matching a feature of the listening audio with the classified features and to switch an audio mode according to the determined audio kind.

2. (Previously Presented) The apparatus of claim 1, wherein the preprocessing part comprises:

a sample audio database configured to collect and to store the sample audio data in the sample audio database;

a first feature extracting part configured to extract the features of the sample audio data stored in the sample audio database; and

an audio kinds sorting part configured to classify the extracted features according to the preset audio kinds.

3. (Previously Presented) The apparatus of claim 2, wherein the first feature extracting part extracts the features from the sample audio data by using any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization.

4. (Canceled).

5. (Previously Presented) The apparatus of claim 1, wherein the audio mode determining part comprises:

Birch, Stewart, Kolasch & Birch, LLP

a second feature extracting part configured to extract the feature from the listening audio if the listening audio is inputted;

a pattern matching part configured to pattern-match the feature of the listening audio with the classified features and outputting a result of the pattern-matching;

an audio sorting determining part for determining an audio kind of which a feature is the most similar to the feature of the listening audio based on the result of the pattern-matching; and

an audio mode switching part configured to switch a current audio mode to an audio mode with respect to the determined audio kind.

6. (Previously Presented) The apparatus of claim 5, wherein the second feature extracting part extracts the features from the input listening audio by using any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization.

7. (Previously Presented) The apparatus of claim 5, wherein the pattern-matching part pattern-matches the feature of the listening audio with the classified features by using any one selected from the group consisting of dynamic programming, HMM (Hidden Markov Model) method, and neutral network method.

8. (Currently Amended) A method for automatically switching audio mode in a digital TVdisplaying audio, the method comprising the steps of:

(a) collecting sample audio data, extracting features from the collected sample audio data and classifying the extracted features according to preset audio kind by using a learning model; and

(b) pattern-matching a feature of a listening audio with the classified features if the listening audio is inputted and outputting a result of the pattern matching, determining an audio kind of a listening audio based on the result of the pattern-matching and switching an audio mode according to the determined audio kind.

9. (Previously Presented) The method of claim 8, wherein the step (a) comprises the steps of:

collecting and storing the sample audio data;

extracting features from the stored sample audio data; and

classifying the extracted features according to the preset audio kinds.

10. (Previously Presented) The method of claim 9, wherein the step of extracting is performed by any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization.

11. (Canceled).

12. (Previously Presented) The method of claim 8, wherein the step (b) comprises the steps of:

extracting the feature from the listening audio if the listening audio is inputted;

pattern-matching the feature of the listening audio with the classified features and outputting the result of the pattern-matching;

determining an audio kind of which a feature is the most similar to the feature of the listening audio based on the result of the pattern-matching; and

switching a current audio mode to an audio mode with respect to the determined audio kind.

13. (Previously Presented) The method of claim 12, wherein the step of extracting the feature is performed by any one selected from the group consisting of ICA (Independent Component Analysis), PCA (Principle Component Analysis), clustering, and vector quantization.

14. (Previously Presented) The method of claim 12, wherein the step of pattern matching is performed by using any one selected from the group consisting of dynamic programming, HMM (Hidden Markov Model) method, and neutral network method.